

# VOLTAGE GENERATING APPARATUS WITH A FINE-TUNE CURRENT MODULE

## Abstract

Voltage generating apparatus includes a positive temperature coefficient current generating module, a negative temperature coefficient current generating module, a fine-tune current module and a voltage output module. The function of the positive temperature coefficient current generating module and the negative temperature coefficient current generating module, which take advantage of characteristics of MOS devices operated in the sub-threshold region, is to generate a stable current of positive temperature coefficient and a stable current of negative temperature coefficient, respectively. The current fine-tune module increases or decreases output current of the negative temperature coefficient current generating module. The voltage output module sums two output currents of the positive temperature coefficient current generating module and the negative temperature coefficient current generating module and transforms the total current into output voltage that is stable under temperature and process variation.